AMEBA-LIKE LEUCOCYTES IN NORMAL BLOOD AND IN PUS

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In cases where there is a question as to the character of motility of bodies suspected of being amebæ, the statement is frequently made that pseudopodia are never seen excepting in amebæ. That such a belief is incorrect, and may under certain conditions lead to error, the following observations tend to show.

The finding of a small motile ameba in the urine of a patient, recently apparently cleared of an intestinal amebiasis, who suddenly had an attack which resembled a liver abscess, suggested the search for amebæ in the blood stream. This patient had no symptoms referable to the amebæ in the bladder and nothing in the lower abdomen to suggest a direct infection.

The examination of the fresh blood on a warm stage showed cells exhibiting all of the characteristics morphologically of amebæ. The picture was so striking that I was able to demonstrate it as a blood infection with amebæ to Dr. P. K. Gilman, who has had years of residence in Manila and who is thoroughly familiar with intestinal amebæ, and to Dr. Alfred C. Reed, for years a practitioner in China and now lecturer on tropical diseases in Stanford University.

An imediate examination of controls, dysentery cases and normal persons, showed the same cells present in all. The blood was obtained by the ordinary method used when examining unstained specimens for malaria—a small drop on a slide covered with a cover slip, the edges of which were sealed with vaseline. The smear should be thin so that the central portion appears as a single layer of red cells and the examination made on a warm stage with a one-sixth or oil immersion lens. The examination may be made immediately but more characteristic forms and greater motility may be demonstrated after an hour or two has elapsed.

Sluggish motility has been observed after seventeen hours. Changes in shape with the flowing of the granules and the progression of the cell may be seen in many cells. In individual cells distinct clear hyaline pseudopodia may be observed, broad or fingerlike and assuming all of the shapes seen in amebæ in the stool. The pseudopods may protrude slowly or shoot out suddenly at one or several points.

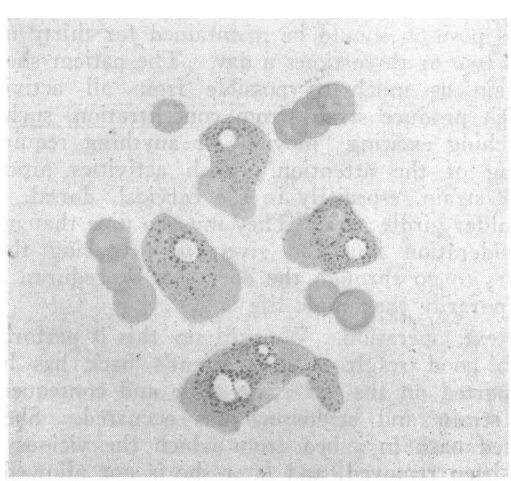
In many cells there is no definite ectoplasm to be seen while others show a distinct endo and ectoplasm. In many cells there appears to be a clear ectoplasm but with progression of the cell in the opposite direction.

The clear hyaline pseudopods are sometimes very indistinct and readily overlooked. The endoplasm may be finely or coarsely granular but nuclei are not clearly in evidence.

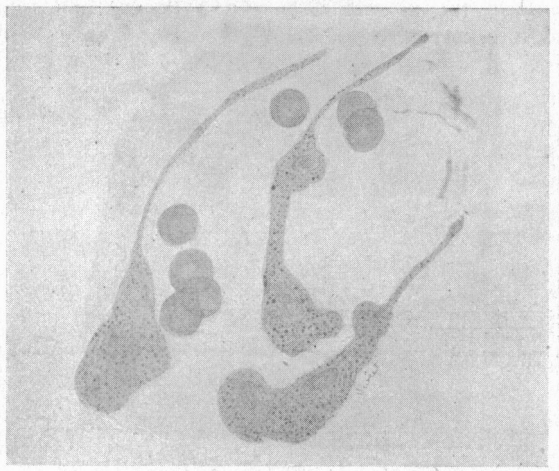
There is considerable difference in the activity of cells from different persons, some being much more active than others. Smears from the blood of some of these cases stained with Wright's stain showed the normal picture and it was impossible to stain any cells in the odd shapes assumed while active.

No. 1—Changes in shape of a leucocyte during ten minutes.

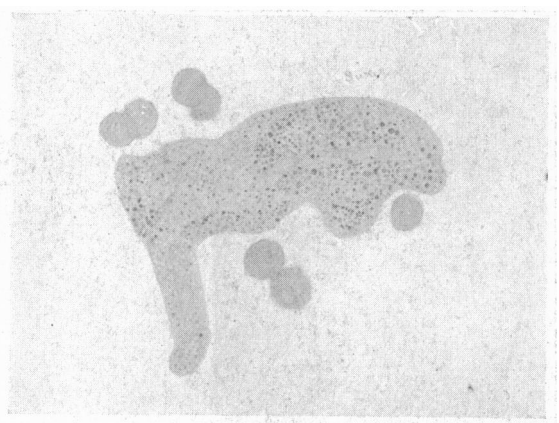
No. 2—Showing clear ectoplasm, pseudopodia and changes in form.



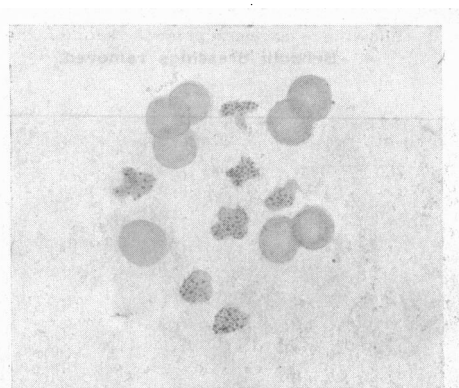
No. 3—Actively motile vacuolated forms.



No. 4—Fantastic shapes assumed over period of ten minutes.



No. 5—Very active leucocyte. Note size compared with red cell.



No. 6—A minute leucocyte, very active.

In pus cells obtained from various sources, intestinal tract, arm, etc., it was possible to demonstrate motility in a few cells but of a different character entirely from that seen in the leucocytes from the blood. In the pus cell there appeared to be a change in shape but no flowing of the granules could be made out and there was no progression. A close scrutiny of these motile cells showed an occasional one extruding a distinct hyaline pseudopod. The nuclei were invisible in some of the motile pus cells and apparently they were polymorphonuclears.

The quesion naturally arises is it possible for the leucocyte under favorable conditions to show all of its characteristic motility after it has left the blood. If so it might explain many peculiar findings reported in the past, similar to the above mentioned bladder infection.

The probabilities are that sluggishly motile leucocytes, assuming as they do at times, bizarre forms are accountable for some of the reports of amebæ or ameboid bodies found in unusual locations.

The drawings were made by Mr. Sweet, medical artist, and are all from the blood.

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PLASTER CAST IMMOBILIZATION OF FRACTURES PRIOR TO OPEN OPERATION FOR REDUCTION OF SAME.

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The object of this paper is to state briefly the advantage of immobilizing fractures in plaster casts a week before attempting the open operation for the reduction of same, and to give the technic of preparing the field of operation which has to date given 100 per cent. clean wounds.

1. A great many fractures reduced by open operation can not be held in proper position after being reduced while the plaster Paris is being applied and allowed to harden, except when held together by some foreign material.

If we operate through a window of an already hardened cast the fracture, when reduced, will usually remain in position without the introduction of plates, screws, wire or other non-absorbable foreign material. This is a very great advantage. Any surgeon doing bone work knows well the disadvantage of using any of the many foreign materials and would prefer to leave them out when apposition can be maintained by any other means.

2. After the fracture is exposed we find the limb (or site of the fracture) is held firm by the cast extending above and below the joints nearest the fracture. This enables the surgeon to apply the lion-jaw forceps, or any other instrument he may choose, to reduce the fracture with very slight effort. The lower edge of the window through which the operation is being performed is a fulcrum upon which to rest the forceps. If extension be necessary and can not be given by an assistant by traction on the limb, an instrument can be placed between the forceps about three inches from the bone (the best instrument being a double end automobile wrench) and by bringing the handles of the forceps together the ends of the bones will separate; and by rocking in any direction desired on the lower edge of the window